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COMPLETE SPECIFICATION

Spacing blocks for stacking platforms or pallets

We, HOLZWERKE ZAPFENDORF G.m.b.H. a German Company, of 13a, Zapfendorf/Oberfranken, Germany, do hereby declare the invention, for which we pray that a

5 patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:-

The present invention concerns spacing blocks for stacking platforms or pallets.

The use of fork stackers for the conveyance and stacking of goods is becoming increasingly popular in all branches 15 of industry. Working with fork stackers presupposes the use of stacking platforms which are frequently also termed pallets. Fig. 1 of the accompanying drawings shows such a stacking platform 20 in perspective view. It consists substantially of the stacking surface and the spacing blocks disposed below it. The stacking surface may, if desired, consist of a unitary piece of 25 suitable material such as a wooden board or, as illustrated in Fig. 1, of a number of separate strips of material, such as wooden boards, which are held together by transverse strips secured 30 below them. Below this stacking surface there are spacing blocks, below which strips of material such as wooden battens may be arranged. The spacing blocks are arranged so that the fork 35 of the fork stacker can be inserted in the space between the individual blocks or series of blocks. Even working carefully, it is not always possible to avoid the fork striking against the 40 spacing blocks, which would damage the blocks and would make necessary their replacement from time to time. In particular, this applies to blocks of pine wood and even blocks of the much 45 harder beech wood in many cases have

not sufficient strength owing to the brittleness of beech wood. Similarly, the use of intermediate blocks which are built up on the principle of plywood are not suitable for this purpose, because a blow of the fork which strikes a layer of wood of the spacing block in the direction of the fibre can tear a piece from the block.

It has now been found that spacing blocks of wood shavings bound with synthetic resin and having a specific gravity of at least 0.9, preferably 1.0 - 1.2, are much better than the spacing blocks known hitherto.

The intermediate blocks of the present invention are manufactured by pressing a composition of wooden shavings and a hardenable synthetic resin, at pressures of at least 50, preferably of 70 kg/cm² and higher, in suitable pressure moulds, and hardening the hardenable synthetic resin present in the wooden shaving composition at a temperature sufficient for the hardening to take place. In any case, the pressures to be employed must be sufficient to impart to the pressed part a specific gravity of at least 0.9 and preferably of 1.0 - 1.2. Upon increasing the moulding pressure, which can rise up to 250 kg/cm² for example, the specific gravity of the pressed parts obtained approaches the specific gravity of the pore-free wood substance, which is approximately 1.4.

The manufacture of such pressed parts bonded with synthetic resins is described, for example, in our earlier Patent No. 740,242. However, the invention is not limited to spacing blocks which are manufactured according to the process there described. The intermediate blocks can be manufactured according to all processes in which

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substantially dry, pourable, wooden shavings mixed with synthetic resin are processed. With special advantage, the wood shaving material may first be
 5 classified into various sieve fractions, by rocker sieves for example, sieve fractions being used which pass through sieves of approximately the following inner mesh widths: 40, 20, 10, 5, 2
 10 and 0.5 mm.

Shaving materials suitable for the present invention are obtained in the normal treatment of natural wood, such as in sawing, turning on a lathe or otherwise and planing. However, shavings may also be used which have been obtained by the grinding of piece wood, particularly of waste piece wood or such as have been cut specially for the manufacture of wood press compositions bonded with synthetic resins from solid wood material and which usually have a more or less flattened shaving form. These wood shavings are then preferably impregnated with an aqueous solution of synthetic resin bonding agent in such manner that they are permeated as completely as possible by the binding agent solution, and then dried at temperatures at which hardening of the synthetic resin has not yet started.

The stacking platforms are frequently provided with a coat of paint for work-psychological reasons, said paint sometimes being applied only to the spacing blocks. This operation is not necessary in the case at least of spacing blocks, if the pressing composition is dyed before the pressing. In this case, any body paints can be used which in the finished pressed member occupy the spaces between the individual wood shavings, or aqueous solutions of dyestuffs which colour the wooden shavings partly or completely through. These water-soluble dyestuffs may also be added to the synthetic resin solutions with which the wood shavings are impregnated.

50 The synthetic resin content of the finished spacing blocks should lie in the range of 5-25 per cent by weight, preferably in the range of 7-17 per cent by weight.

55 The shavings compositions are placed in moulds and pressed at the stated pressures and at temperatures which are sufficient for the hardening of the synthetic resin, preferably at temperatures of at least 100°C. During this operation the shape of the mould is transferred to the pressed product so that any desired shape of spacing blocks can be obtained. These may consist of solid wood shaving material;

owing to the high strength of the material of the wooden pressed products to be used according to the present invention, it is however possible also to use intermediate blocks having cavities, provided that the wall thickness of these blocks is adequate for any stresses which may occur. Wall thicknesses of 1-5 cm. are sufficient according to the size of the spacing blocks. 75

So that the spacing blocks may be more easily removed from the moulds, it is advisable to provide them with a slightly frustoconical shape. The projection of the edge of the smaller base surface upon 80 the larger base surface may therefore not overstep the latter at any point and must at least at some points have a small space interval from the edge of the larger base surface, which space, in the 85 case of an intermediate block of 10 cm. height, may amount to 0.25-5 mm., for example, preferably 0.5-2.5 mm.

Owing to the high mechanical resistance of the wood press composition the 90 latter can be worked only with difficulty with the normal wood-working tools. Therefore it is advisable to provide recesses, necessary for the securing means, from the very beginning. 95

This point will be understood more clearly by reference to the accompanying drawings, in which Fig. 2 is a vertical section through a stacking platform manufactured with the use of spacing 100 blocks according to the present invention, and Figs. 3a and 4a illustrate such spacing blocks in perspective and Figs. 3b and 4b in vertical section.

In the spacing block 1 there is a cylindrical cavity 7 extending axially with respect to said block. This cavity serves to receive the continuous metal sleeve 3 which is sometimes used in the manufacture of stacking platforms and has a flange 5 on its upper and lower edges respectively and thus connects the spacing block with the stacking surface and a batten 4 disposed, if preferred, below the spacing blocks. This metal sleeve is mainly used for receiving a comparatively long insertion bar on which the next stacking platform is then slipped if it is not desired or possible to set it directly on the stacked material lying on the stacking platform below. If such use of the stacking platforms is not intended, the intermediate blocks can be secured with so-called lock screws 6 instead of with the metal sleeves. Since intermediate blocks having a cavity, as shown in Figs. 3a and 3b, can be easily displaced about the lock screw, it is advisable to make the 120 125 130

cavity, at least at one position of the intermediate block, so narrow that the intermediate block and the lock screw are in contact and displacement is no longer possible. Such an intermediate block is shown in Figs. 4a and 4b. The upper portion 7 of the cavity is made comparatively wide so that an economy of the material is achieved; the lower portion 8 of the cavity is made so narrow that it is in contact with the surface of the lock screw. As shown in Fig. 4b, a great reinforcement is achieved thereby in the lower portion of the intermediate block.

Owing to their great mechanical strength the intermediate blocks to be used according to the present invention are much less sensitive than those of natural wood. However, the life of these blocks can be further increased if they have shapes which are very insensitive to an impact from the fork of the said stacker. It is therefore advisable to select shapes which oppose a curved or bevelled wall to the direction of movement of a fork stacker, over which the fork can easily slide off. Spacing blocks having a circular cross-section have proved to be very successful.

WHAT WE CLAIM IS:-

1. A spacing block for a stacking platform, comprising wood shavings bonded with a synthetic resin and having a specific gravity of at least 0.9.
2. A spacing block as claimed in Claim 1, having a specific gravity of 1.0-1.2.
3. A spacing block as claimed in either of Claims 1 and 2, having a cavity passing axially through its entire length.
4. A spacing block as claimed in Claim 3, in which said cavity has a constriction.
5. A spacing block as claimed in any of Claims 1 to 4, which is circular in cross-section.
6. A spacing block as claimed in any of Claims 1 to 5, which is frustoconical.
7. A spacing block as claimed in any of Claims 1 to 6, which has been dyed before forming.
8. A spacing block for a stacking platform, substantially as hereinbefore described with reference to and as illustrated in Figs. 3a and 3b of the accompanying drawings.
9. A spacing block for a stacking

platform substantially as hereinbefore described with reference to and as illustrated in Figs. 4a and 4b of the accompanying drawings.

10. A stacking platform comprising spacing blocks as claimed in any of the preceding claims.

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